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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/248,980	02/12/1999	NAOTO ABE	862.2678	9424

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EXAMINER

EISEN, ALEXANDER

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 07/20/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/248,980

Applicant(s)

ABE, NAOTO

Examiner

Alexander Eisen

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 51-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 51-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 51, 53, 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Seiko Instruments Inc., (“Seiko”), GB 2 204 174 A.

3. With respect to claim 51 Seiko discloses a display panel 75 (FIG. 7) adapted to display an image; a pulse width modulation signal generator 85 (FIG. 8) adapted to input digital data, corresponding to the image (A1, B1 and C1) and a clock signal CLK₂, and to count pulses (counter 80) in correspondence with the digital data to generate a pulse width modulation signal a₁ - a_x for driving the display panel, wherein the pulse width modulation signal has a pulse width that corresponds to a number of pulses of the clock signal corresponding to gray scale level of the image. The clock generator is adapted to generate the clock signal in accordance with items of data I1-I15 loaded into a shift register 90 (FIG. 9) in synchronism with a reference clock signal.

Although Seiko does not expressly teach that the clock generator is provided with a memory for storing a plurality of items of data, it is understood that the data represents a curve shown in FIG. 10, describing a relationship between the desired (input ABC) gray scale level or reflectivity and effective voltage (pulse width modulated) required to obtain

Art Unit: 2674

corresponding gray scale, and the curve would be inherently stored in a memory, which provides inputs I1 through I15 for the shift register 90 (page 10, lines 19-31).

As to claim 53 Seiko discloses the shift register 90 for storing the data (I1-I15) and serially outputting data in synchronism with the reference clock signal. It is notoriously known in the art that shift registers are composed from a plurality of flip-flops.

As to claim 56, Seiko further teaches that the data is for improving gray scale display to obtain uniformity changes over a range from 0 to 100%, i.e. for improving tonality at all levels of luminance (P. 10, ll. 6-18).

4. Claims 51, 55 and 56 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Victor CO of Japan, ("Victor"), JP 05-241526 (reference supplied by the applicant, Second IDS, paper #7).

Victor discloses a display panel 22 (FIG. 2) adapted to display an image; a pulse width modulation signal generator 40 (FIG. 1) adapted to input digital data, corresponding to the image (n-bit output from shift register 4 in FIG. 1) and a clock signal C1, and to count pulses (counter 8) in correspondence with the digital data to generate a pulse width modulation signal e for driving the display panel, wherein the pulse width modulation signal has a pulse width that corresponds to a number of pulses of the clock signal corresponding to gray scale level of the image. The clock generator includes a memory ROM, which is read in synchronism with a reference clock signal (paragraphs [0016] and [0021]).

As to claims 55 and 56, Victor discloses that data may include gamma correction data (see paragraph [0020]).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 52 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Victor in view of Hitachi, JP 02-4004 (reference supplied by the applicant in IDS).

Victor discloses a display panel adapted to display an image; a pulse width modulation signal generator adapted to input digital data, corresponding to the image and a clock signal C1, and to count pulses in correspondence with the digital data to generate a pulse width modulation signal e for driving the display panel, wherein the pulse width modulation signal has a pulse width that corresponds to a number of pulses of the clock signal corresponding to gray scale level of the image, and wherein the pulse width is based on the data loaded into the shift register.

Victor does not disclose a counter for inputting and counting the reference clock signal to supply an address signal of the memory and a latch circuit for latching the data read from the memory in accordance with address signal. Victor also does not disclose that a system controller is used for selecting the one of the plurality of item of data.

In regard to claim 52 Hitachi teaches a pulse width generating circuit comprising a memory 3, a counter 2 and a system controller 6, wherein a phase designating data is stored into the memory by the processor, wherein the counter is counting the reference clock to supply an address signal of the memory and the data from the memory is latched

Art Unit: 2674

into a shift register 4, when the data is read from the memory in accordance with the address signal.

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to apply the teachings of Hitachi to the pulse width modulation signal generator of Victor, because while Victor discloses the data for controlling the pulse width, it does not specifically teaches the arrangement of how this data is read from the memory and in this sense Hitachi complements the teachings of Victor and allows to those of ordinary skill in the art to implement and practice the invention of Victor.

As to claim 54, Hitachi teaches the system controller for setting the pulse width data, which should be read from the memory RAM 3.

7. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Victor in view of Teggatz, US 6,300,922.

Victor discloses a display panel adapted to display an image; a pulse width modulation signal generator adapted to input digital data, corresponding to the image and a clock signal C1, and to count pulses in correspondence with the digital data to generate a pulse width modulation signal e for driving the display panel, wherein the pulse width modulation signal has a pulse width that corresponds to a number of pulses of the clock signal corresponding to gray scale level of the image.

Victor does not disclose that the display panel comprises a vacuum container, which accommodates a substrate on which a plurality of electron sources is provided and an image forming member for forming an image by electrons emitted by the plurality of electron sources.

Art Unit: 2674

Teggatz teaches a display panel that comprises a vacuum container, which accommodates a substrate on which a plurality of electron sources is provided and an image forming member (phosphorus, for example) for forming an image by electrons emitted by the plurality of electron sources (FIG. 2; col. 4, ll. 27-57).

It would have been obvious to one of ordinary skill in the art at the time when the invention was made that the pulse width modulation generator taught by Victor can be applied in the display panel of Teggatz, because both employ pulse width modulation and the former teaches an improved one, which can compensate for gamma or transfer characteristic of display device of the latter.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. EP 0 836 800 A1 discloses claimed invention but does not constitute a prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is (703) 306-2988. The examiner can normally be reached on M-F (8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe can be reached on (703) 305-4709. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2674

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander Eisen
Primary Examiner
Art Unit 2674

12 July 2004